6 18 1983

830-M-15

NAS1.55:OSSA-2-83

NASA
National
Aeronautics and
Space
Administration

COMPLETED
26

ORIGINAL

AO NO. OSSA-2-83
MAY 27, 1983

Announcement of Opportunity

CHEMICAL RELEASE ACTIVITY USING THE COMBINED RELEASE AND RADIATION EFFECTS SATELLITE

NOTICE OF INTENT DUE DATE: JUNE 27, 1983

PROPOSAL DUE DATE: AUGUST 27, 1983

ANNOUNCEMENT OF OPPORTUNITY

FOR

CHEMICAL RELEASE ACTIVITY USING THE COMBINED RELEASE AND RADIATION EFFECTS SATELLITE

AO No. OSSA-2-83 May 27, 1983

I. DESCRIPTION OF THE OPPORTUNITY

The National Aeronautics and Space Administration (NASA) announces the opportunity for participation in scientific investigations in the fields of atmospheric, magnetospheric, and ionospheric physics; chemistry and photochemistry of the ionosphere; and basic plasma physics using the chemical release capabilities of the Combined Release and Radiation Effects Satellite (CRRES). CRRES is currently planned to be launched into orbit by the Space Shuttle during the second half of 1985. A broad range of potential experiments is contemplated. This Announcement solicits proposals for scientific investigations utilizing the release of chemicals by CRRES. It is envisaged that proposed investigations will increase our understanding of the plasma physics of the near earth environment. Proposed investigations can be based on the observation of one or more specified chemical releases and the resulting effects on the surrounding medium or the theoretical simulation and analysis of chemical releases for comparison with observations or both. Observational investigations proposed as part of the response to this AO are constrained to the use of instruments, ground-based facilities, aircraft, rockets, and other satellites that will be available at the time of the CRRES launch. Although proposed investigations which include development of new instruments for ground-based, aircraft, or rocket observations will be considered in response to this Announcement, severe constraints on the availability of funding for CRRES chemical release observation experiments prior to October 1984 may preclude their selection. Substantial justification will be required for the development of any new instrumentation.

The Principal Investigators selected under this AO shall have the prime responsibility for conducting investigations which may include carrying out observing programs, data analysis, and/or theoretical simulations of releases. NASA will assist the selected Principal Investigators as necessary with logistical problems such as remote-site communications and coordination of complex observing programs and will provide necessary information

BEST DOCUMENT AVAILABLE

on items such as orbit parameters. Following selection of the investigations for the chemical release portion of CRRES, an Investigators Working Group (IWG) composed of Principal Investigators will be formed by NASA. This group will be chaired by the Project Scientist at Marshall Space Flight Center. The IWG will participate in mission planning and mission operations and will meet approximately once every three months beginning approximately December 1983. In general, meetings will last about two days.

CRRES, including the payload of chemical release canisters, will be furnished by NASA and the Department of Defense (DOD). The Earth Science and Applications Division, Office of Space Science and Applications, NASA Headquarters, is managing the mission for NASA: and the Space Test Program is managing the mission for DOD. Marshall Space Flight Center will serve as the implementing project office for both DOD and NASA.

CRRES will be deployed from the Shuttle and thereafter will conduct the primary chemical release mission for a period of at least 45 days. The orbit during this portion of the CRRES mission will be circular with an inclination of approximately 28.5° and an altitude of approximately 350 km. The satellite will then be boosted into an elliptical orbit with an approximate perigee of 350 km and an apogee of 8 Earth radii. While it may be possible to make some high altitude chemical releases from this elliptical orbit and proposals for making such releases will be considered, there is no guarantee that high altitude releases can be accommodated within the mission profile. Those portions of a proposed investigation which relate to high altitude chemical releases should be clearly identified and discussed separately in all sections of a proposal.

The onboard command and data system will allow canisters of chemicals to be released in pairs from the satellite upon ground command. The canisters will then move away from the satellite in opposite directions for about 20 minutes before releasing the chemicals. The exact time delay will be set prior to canister release. Maximum separation between a canister and the satellite will be about 6 km; and thus, the pair of canisters that are released together will be within 12 km of one another. Because the satellite will be spinning, the direction in which the canisters are released from the satellite cannot be controlled.

The complement of chemical release canisters and their contents will be specified by NASA based upon the investigations selected in response to the Announcement and the recommendations of the IWG. Approximately 1000 kg have been allocated for the chemical release payload on CRRES. This will be distributed

among approximately 40 canisters which can be released in pairs or in larger groups. The actual weight of the chemical release payload and the number of canisters will be determined by the scientific needs of the selected investigations and the physical capabilities of the satellite.

Given the limited time for release of chemicals in the low altitude orbit and the dependence of many potential investigations upon variable conditions such as weather at an observing site, NASA may select more investigations than can be completely carried out during this phase of the CRRES mission. The actual operational conditions encountered may require the implementation of alternative release scenarios. NASA will seek the scientific and technical advice of the selected group of Principal Investigators on such alternatives as part of the normal IWG mission planning activities.

While the CRRES has not been formally approved for development, the commitment of funds for the mission is expected over the next few months. In accordance with physical and budgetary constraints, the following guidelines have been established.

1. The CRRES mission is tentatively targeted for a launch in late 1985. This Announcement solicits proposals for this flight opportunity only.

2. All canisters, tanks, chemicals, etc., will be furnished by the Government.

3. At least the low altitude orbit portion of the mission will be used for the release of chemicals. Releases in the elliptical orbit will be considered.

4. Following deployment from the Shuttle, the CRRES will function as an independent spacecraft with telemetry data and command flow through the Air Force Space Ground Link Subsystem (SGLS) network.

II. ANNOUNCEMENT OBJECTIVES

To be considered, proposals submitted in response to this Announcement should address scientific objectives in one or more of the following areas:

A. Upper Atmospheric Dynamics

- o Upper atmospheric dynamics, including wave motion, and wind patterns

- o Coupling of the upper atmosphere with the ionosphere
- o Stimulation of upper atmospheric perturbations

B. Magnetospheric Physics - Ionospheric Physics and Chemistry

- o Large-scale morphology of electric and magnetic fields
- o Magnetospheric plasma source mechanisms
- o Magnetospheric-ionospheric coupling
- o Ionospheric dynamics
- o Ionospheric modification
- o Ionospheric chemistry including photochemical source and loss mechanisms

C. Space Plasma Physics

- o Plasma processes in the natural plasma laboratory offered by the magnetosphere-ionosphere system.

III. BACKGROUND

The CRRES mission has evolved from the NASA Chemical Release Module and the Air Force Space Test Program Radiation Satellite. It has been determined that the major scientific objectives of both of these missions can be accomplished using a single spacecraft.

The use of chemical release techniques for experiments in atmospheric, magnetospheric, and space plasma physics has been discussed by the Plasma Interaction and Flow Section of the Atmospheres, Magnetospheres, and Plasma in Space (AMPS) Working Group. The scientific rationale and conceptual design for a Chemical Release Facility was developed by the Chemical Release Module Facility Definition Team of the AMPS Science Definition Working Group. Additional background material discussing the Chemical Release Module concept as it existed prior to the formulation of the CRRES mission will be supplied upon request. Two references discussing this concept are:

Chemical Release Module - A Multi-User Facility for Shuttle Spacelab, March 1978, NASA-Goddard Space Flight Center.

Chemical Release Module - A Multi-User Facility for Shuttle Spacelab, May 1979, NASA-Goddard Space Flight Center.

IV. PROPOSAL OPPORTUNITY PERIOD

Proposals must be received prior to 4:30 p.m. EDT, August 27, 1983, to be considered for selection.

Notice of Intent

To facilitate the planning of the evaluation process and obtain proposal preparation material, proposers should submit a "Notice of Intent" to propose to the address listed in Section VI before June 27, 1983. See Section VI.A. for a description of the Notice of Intent.

V. REQUIREMENTS AND CONSTRAINTS

A. CRRES Procurement

In order to minimize the program complexity and cost, it has been determined that the CRRES and all canisters of chemicals and release devices for CRRES will be furnished by the Government to the specifications which are mutually agreed to by the Principal Investigators and the CRRES Project Office at Marshall Space Flight Center and approved by NASA Headquarters.

B. Investigators

Proposals must designate one individual as the Principal Investigator (PI) who will be the single point of contact with NASA and will assume responsibility for conducting the selected investigation. The PI will be responsible for the activities of the team of Co-Investigators (Co-I's) required to carry out the research. Co-I's should be included in the investigation only if they have specific and well-defined roles to play. The responsibilities and contributions of the Co-Investigators must be identified and justified in the proposal. The designation "Co-Principal Investigator" is not acceptable. Only the PI will serve as a member of the IWG. The PI is responsible for conducting or negotiating arrangements for required observations or theoretical simulations and analyses including the use of facilities. The PI is responsible for timely data analysis and interpretation and for providing the data to an appropriate data archive for general use by the scientific community.

C. Use of Existing Instrumentation and Joint Use of Instrumentation

Proposed investigations may include use of existing instruments or use of instruments presently under development as they become available. New instruments for ground-based, aircraft, or rocket observations may be proposed, but the need for these will require substantial justification in the proposal. NASA reserves the right to require the use of U.S. Government-furnished instrumentation or support equipment which is appropriate to the proposed investigation. Individual investigations will be expected to support one another through complementary observations whenever it is advantageous to do so. The IWG will advise NASA on how best to facilitate and coordinate the overall observing program.

D. Scope of Proposal

The proposal must describe a scientific investigation to fulfill one or more of the objectives stated in Section II. The proposal must specify the requirements for the kind and amount of material to be released from the CRRES and for specific ejection conditions. The PI is expected to submit plans and budgets for a program to meet the objectives of his or her investigation.

Observational investigations should plan to use existing instrumentation to the maximum extent possible; new instrument development will only be considered where absolutely essential. Proposed investigations should not include the development of any new satellites or support facilities (e.g., large radar facilities, rocket launching platforms, scientific aircraft).

Proposed investigations which will make use of satellites that will be in orbit during the chemical release activity are encouraged. However, the proposal should not include funding for the routine operation of the satellite or for the routine retrieval of data. The funding requested in a response to this Announcement can include the costs of obtaining copies of the relevant data in an appropriate format and shall include data analysis required to successfully complete the investigation. Requirements for special satellite operations may result in other costs to NASA, and these will be taken into account in judging the overall worth of a proposed investigation.

Proposed investigations which will make use of sounding rocket observations are also encouraged. However, it should be recognized that funding for sounding rocket flights and payload development will have to be provided through the NASA sounding rocket program and not through the CRRES program.

Proposed investigations which will make use of aircraft or ground-based facilities are also encouraged. Funding for use of such facilities is within the scope of a response to this

Announcement. Such funding can include the investigator's costs of integrating and deintegrating instruments with the facility and standard charges for the use of the facility. Funding for data analysis to complete the proposed investigation shall also be included. The Principal Investigator is to take responsibility for obtaining the use of any needed facility with assistance from NASA where appropriate.

The activities proposed as part of the investigation should be consistent with the following tentative schedule:

December 1983 - September 1984: IWG planning meetings every three months and detailed investigation definition

October 1984 - Launch: preparation for observational campaign

Launch - Launch plus at least 45 days: deployment of chemical releases and execution of the observational portion of the mission

18 months following observations: data analysis and preparation of scientific reports.

VI. PROPOSAL SUBMISSION INFORMATION

A. Preproposal Activities

Parties interested in responding to this Announcement of Opportunity should submit a "Notice of Intent" to propose to the following address:

Dr. Dixon M. Butler
Code EE-8 (AO No. OSSA-2-83)
NASA Headquarters
Washington, DC 20546
Telephone: 202/755-3421

Foreign parties should send a copy of their "Notice of Intent" to propose to the NASA International Affairs Division, Code LID-18 (AO No. OSSA-2-83), Washington, DC 20546, USA.

The "Notice of Intent" to propose should be received by NASA before the date specified in Section VIII and contain the information set out below.

1. For the Principal Investigator and all Co-Investigators, provide the following:

Name
Position or Title
Institution or Organization
Area Code and Telephone Number
Address

2. Specific science objective(s) that the investigation addresses (ref. Section II).

3. A short paragraph describing the investigation and its key requirements and characteristics.

Questions regarding the AO should be directed to Dr. Dixon M. Butler.

B. Format of Proposals

U.S. Proposals:

The proposal must be submitted in four sections: Investigation and Technical Plan (and Appendices), Data Plan, Management Plan, and Cost Plan. Eighteen copies of the proposal must be submitted. The title page of the proposal must state the title of the investigation; the name, address, and phone number of the PI; and the estimated total cost of the investigation. A one page abstract of the investigation is required. A description of the release scenario(s) being proposed, major parameters of primary instruments to be used to observe these release(s), and/or the models to be provided for simulations of the releases must be included. Any options offered by the proposer must be clearly identified in the abstract. If the proposal covers both low and high altitude releases (see Section I), each section must clearly separate and identify those portions of the plan which pertain to high altitude releases.

The Investigation and Technical Plan of the proposal should consist of a main body and optional appendices. The main body must be limited to a maximum of 20 single spaced, typewritten pages without reduction, including illustrations, and may contain no more than two foldout pages. Appendices may be used to clarify technical details; but appended data, including illustrations, must not exceed in total, twenty single spaced, typewritten pages without reduction. Appended data will not necessarily be considered during the proposal evaluation. Proposals should be as complete as possible and contain enough background to be meaningful to a reviewer who is generally knowledgeable in the field, but not necessarily a specialist.

The Data Plan should contain a description of the data that will be obtained and of the data that will be required from

sources outside the investigation. The different forms that these data will take should be identified together with the proposed format for each type of data. The plan should define the means proposed for providing data to the IWG for shared use. The plan must include a proposed method for supplying data to an appropriate data archive and must describe the forms, formats, and quantities in which it will be supplied.

The Management Plan should summarize the management approach and the facilities, equipment, and supporting services, if any, which are requested. The Management Plan should also discuss the resources (such as existing equipment) that the PI might make available to support other investigations selected in response to this Announcement, as well as the resources that the PI needs from NASA in order to conduct the proposed investigation. The Management Plan should also discuss requirements for coordination of observations and chemical releases and for support of remote site activities.

The proposers must include a discussion of the roles that they and their institutions intend to play in their investigation. This discussion must include a statement of the portion of time which they expect to devote to the investigation and of the institutional resources on which they can draw. The proposals should also name all key participants in the project and should provide their curriculum vitae and relevant publication lists.

The Cost Plan should contain a detailed estimate of the total cost of the investigation in current year dollars with sufficient information to judge the reliability of the estimate. The assumptions on which the estimates are based should be stated, particularly with regard to equipment and services furnished by the government or other agencies. (See also Attachments A and B).

The proposals must be signed by an official authorized to certify institutional support and sponsorship of the investigation, including the management and financial parts of the proposal.

Domestic proposals must be addressed to:

National Aeronautics and Space Administration
Dr. Dixon M. Butler, CRRES Program Scientist
Code EPM-20
AO-OSSA-2-83
NASA Headquarters
Washington, DC 20546

Foreign Proposals:

Proposals for participation by individuals outside the U.S. should be submitted in the same format (excluding cost plans) as U.S. proposals. Additional guidelines are contained in Attachment B, Section II (For Notice of Intent to propose see Section VI.A)

All Proposals:

To expedite handling, a special label should be placed in the lower left corner of the package containing the proposals. Use tne following format:

Source: (name of submitting institution)

Investigator: (Principal Investigator's name)

Title: (title of the investigation)

NASA will notify the proposers in writing that their proposals have been received. Proposers not receiving this confirmation within two weeks after closure date should contact Dr. Dixon M. Butler (see Section VI.A). Any questions you may have about this opportunity may also be directed to Dr. Butler. Additional general instructions, provisions, and guidelines are given in Attachments A and B.

VII. PROPOSAL EVALUATION AND SELECTION PROCEDURES

A. Evaluation and Selection Procedures

Proposals received in response to this AO will be evaluated in accordance with the provisions of NASA NHB 8030.6A - Guidelines for Acquisition of Investigations. Accordingly, such proposals will be reviewed by a competent group of outside evaluators. The purpose of the review is to assess the scientific and technical merit of the proposals in the context of this AO. The proposals will be further reviewed by the CRRES Project Office at MSFC to determining their technical feasibility and overall compatibility with the CRRES mission plan. The results of these scientific, technical, and programmatic reviews will be used by an ad hoc subcommittee of the Space Science and Applications Steering Committee to categorize the proposals.

The NASA Associate Administrator for Space Science and Applications will make selections on the basis of these reviews and the recommendations of the Earth Sciences and Applications Division and the Space Science and Applications Steering Committee. Selection of investigations will involve

consideration of the relevance to ongoing NASA programs, overall balance between investigations addressing different scientific questions, and the availability of funds and other mission-related resources. Investigations may be tentatively selected with final confirmation of selection following successful completion of an experiment definition study.

B. Evaluation Criteria

The fundamental goal of the investigation acquisition process is to identify unique ideas and capabilities which best suit the overall scientific and technological objectives of NASA. The following criteria, listed in order of importance, will be used in evaluating individual proposals:

1. The scientific and technological merit of the investigation and the probability of achieving significant results.

2. The relevance of the proposed investigation to the specific opportunity and to the established experiment objectives cited above (see Section II).

3. The competence, commitment, and relevant experience of the Principal Investigator and his/her team to fulfill the specific responsibilities of the roles proposed as an indication of their ability to carry the investigation to a successful conclusion.

4. The adequacy and practicality of the plan and facilities for carrying out the proposed investigation.

5. The reputation and interest of the investigator's institution, as measured by the willingness of the institution to provide the necessary support to insure that the investigation can be completed satisfactorily.

In addition to the criteria listed above, cost and management factors will be separately considered in all selections. The cost attributed to a proposed investigation will include all costs to be born by NASA including costs not covered by the proposal such as those for special satellite operations, aircraft flight charges, or sounding rocket launches. Costs for such ancillary services will be estimated by the Project Office as part of its management and cost review of each proposal. NASA may desire to select only a portion of a proposed investigation, in which case the investigator will be given the opportunity to accept or decline such partial acceptance.

BEST DOCUMENT AVAILABLE

C. Implementation

Individuals responding to this Announcement will be notified of the outcome of the proposal selection process by NASA Headquarters. It is currently expected that official notifications of acceptance or rejection will be issued in approximately December 1983. Selected investigators will subsequently be contacted by a representative of the Marshall Space Flight Center who will be authorized to discuss the specific terms under which the investigation will be implemented.

VIII. SCHEDULE

Significant dates for those considering responding to this Announcement are:

Notice of Intent to Propose	-	June 27, 1983
Proposal Submittal Date	-	August 27, 1983
Selection Announcement	-	December 1983

The chemical release activity of the Combined Release and Radiation Effects Satellite will be a major opportunity for conducting active space plasma experiments in the mid-1980's. It is expected that important new understanding of upper atmosphere dynamics, magnetospheric physics, ionospheric physics and chemistry, and space plasma physics in general will be gained from the use of this satellite facility. I invite you to participate in this important and exciting endeavor.

B. I. Edelson
Associate Administrator for
Space Science and Applications

Enclosures

ENCLOSURE A

GENERAL INSTRUCTIONS AND PROVISIONS

1. INSTRUMENTATION AND/OR GROUND EQUIPMENT

By submitting a proposal, the investigator and institution agree that NASA has the option to accept all or part of the offeror's plan to provide the flight and/or ground instrumentation and ground support equipment required for the investigation or NASA may furnish or obtain such instrumentation or equipment from any other source as determined by the selecting official. In addition, NASA reserves the right to require use, by the selected investigator, of Government instrumentation or property that subsequently becomes available, with or without modification, that will meet the investigative objectives.

2. TENTATIVE SELECTIONS, PHASED DEVELOPMENT, PARTIAL SELECTIONS, AND PARTICIPATION WITH OTHERS

By submitting a proposal, the investigator and the organization agree that NASA has the option to make a tentative selection pending a successful feasibility or definition effort. NASA has the option to contract in phases for a proposed experiment and to discontinue the investigative effort at the completion of any phase. The investigator should also understand that NASA may desire to select only a portion of the proposed investigation and/or that NASA may desire the individual's participation with other investigators in a joint investigation, in which case the investigator will be given the opportunity to accept or decline such partial acceptance or participation with other investigators prior to a NASA selection. Where participation with other investigators as a team is agreed to, one of the team members will normally be designated as its team leader or contact point.

3. SELECTION WITHOUT DISCUSSION OR AFTER LIMITED DISCUSSION

The Government reserves the right to reject any or all proposals received in response to the Announcement when such action shall be considered in the best interest of the Government. Notice is also given of the possibility that selection may be made without discussion or after limited

discussion. It is, therefore, emphasized that all proposals should be submitted initially on the most favorable terms that the offeror can submit.

4. FOREIGN PROPOSALS

Proposals for participation by individuals outside the U.S. should be submitted in the same format (excluding cost plans) as U.S. proposals. They should be typewritten and in English.

Foreign proposers must have their proposal reviewed and endorsed by the appropriate foreign government agency. Endorsed proposals should be forwarded to NASA to arrive before the Announcement deadline indicated under "Receipt of Proposals." "Notice of Intent" to propose should be sent directly to the office designated in the Announcement with a copy sent to NASA's International Affairs Division. All correspondence (including proposals and endorsements) from foreign proposers and organizations should be sent to:

National Aeronautics and Space Administration
International Affairs Division
LID-18
AO No. OSSA-2-83,
Washington, DC 20546
U.S.A

Foreign proposals will go through the same evaluation and selection process as U.S. originated proposals. Should a proposal be selected, NASA will arrange with the foreign sponsoring agency for the proposed participation on a no-exchange-of-funds basis, in which NASA and the sponsoring agency will each bear the cost of discharging its respective responsibilities, including travel and subsistence of its own personnel and transportation of all equipment for which it is responsible.

5. TREATMENT OF PROPOSAL DATA

The following will apply in the treatment of proposal data received in response to this Announcement:

a. Commercial and Financial Data

(1) It is NASA's policy to use commercial and financial data included in proposals for evaluation purposes only. This policy does not require that this kind of proposal data bear a notice.

(2) Where it is the practice of an offeror or proposed subcontractor to treat certain commercial and financial data as a trade secret, and such data is protectible as a trade secret under law, that offeror may apply the "Notice" of paragraph (b) below to those portions to be maintained as a trade secret.

(3) In any event, commercial and financial data submitted to NASA in a proposal will be protected to the extent permitted under the law, either as a properly noticed trade secret, or as commerical or financial information received from a person and considered confidential or privileged.

b. Technical Data. It is NASA's policy to use the technical data contained in any proposal submitted in response to this Announcement for evaluation purposes only. Where any of such technical data constitutes a trade secret under the law and the offeror, or potential subcontractor, desires to maintain trade secret rights in such technical data, the following "Notice" must be affixed to the cover sheet of the proposal specifying therein the pages of the proposal which contain trade secrets to be restricted in accordance with the conditions of the "Notice." Thereafter, it is NASA policy to protect such noticed technical data as a trade secret. NASA assumes no liability for use or disclosure of any proposal technical data to which the "Notice" has not been applied.

NOTICE

> Data on page ____ of this proposal constitute a trade secret. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, in the event a contract is awarded on this proposal, the Government may obtain in the contract additional rights to use and disclose this data.

6. STATUS OF COST PROPOSALS (U.S. PROPOSALS ONLY)

The investigator's institution agrees that the cost proposal submitted in response to the Announcement is for proposal evaluation and selection purposes, and that following selection and during negotiations leading to a definitive contract, the institution will be required to resubmit or execute a DD Form 633 (Contract Pricing Proposal) and all certifications and representations required by law and regulation.

7. LATE PROPOSALS

The Government reserves the right to consider proposals or modifications thereof received after the date indicated for such purpose, but before award is made, should such action be in the interest of the Government.

8. DISCLOSURE OF PROPOSALS OUTSIDE GOVERNMENT

NASA may find it necessary to obtain proposal evaluation assistance outside the Government. Where NASA determines it is necessary to disclose a proposal outside the government for evaluation purposes, arrangements will be made with the evaluator for appropriate handling of the proposal information. Therefore, by submitting a proposal the investigator and institution agree that NASA may have the proposal evaluated outside the Government. If the investigator or institution desire to preclude NASA from using an outside evaluation, the investigator or institution should so indicate on the cover. However, notice is given that if NASA is precluded from using outside evaluation, it may be unable to consider the proposal.

9. EQUAL OPPORTUNITY (U.S. PROPOSALS ONLY)

By submitting a proposal, the investigator and institution agree to accept the following clause in any resulting contract:

EQUAL OPPORTUNITY (JUNE 1973)

During the performance of the contract, the contractor agrees as follows:

a. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include but not be limited to the following: employment; upgrading, demotion, or transfer; recruitment or recruitment advertising; layoffs or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

b. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will review

consideration for employment without regard to race, color, religion, sex, or national origin.

c. The contractor will send to each labor union or representative of workers, with which the contractor has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency Contracting Officer, advising the labor union or workers' representative of the contractor's commitments under this nondiscrimination clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The contract will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375 of October 13, 1967, and of the rules, regulations, and relevant orders of the Secretary of Labor.

e. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375 of October 13, 1967, and by the rules, regulations, and orders of the Secretary of Labor or pursuant thereto, and will permit access to the contractor's books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

f. In the event of the contractor's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended, in whole or in part, and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375 of October 13, 1967, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375 of October 13, 1967, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

g. The contractor will include the provisions of Paragraph (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, as amended by Executive Order 11375 of October 13, 1967, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in, or

is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

ENCLOSURE B

GUIDELINES FOR PROPOSAL PREPARATION

The following guidelines apply to the preparation of proposals by potential investigators in response to an Announcement of Opportunity. The material presented is merely a guide for the prospective proposer, and not intended to be all encompassing or directly applicable to the various types of proposals which can be submitted. The proposer should, however, provide information relative to those items applicable or as otherwise required by the Announcement of Opportunity.

1. COVER LETTER

A letter or cover page should be forwarded with the proposal. It should be signed by the investigator and an official by title of the investigator's organization who is authorized to commit the organization that is responsible for the proposal and its contents.

2. TABLE OF CONTENTS

The proposal, if not submitted on a form furnished by NASA, should contain a table of contents.

3. IDENTIFYING INFORMATION

The proposal should contain a short descriptive title for the investigation, the names of all investigators, and the name of the organization or institution. The full name of the Principal Investigator should be given along with his/her address with zip code and telephone number.

SECTION I
INVESTIGATION AND TECHNICAL PLAN AND DATA PLAN

A. INVESTIGATION AND TECHNICAL PLAN

The investigation and technical plan generally will contain the following:

1. EXECUTIVE SUMMARY

All proposals shall contain a summary not to exceed one page. It should be a simple, concise statement about the investigation, its conduct, and the anticipated results.

2. SCIENCE RATIONALE AND APPROACH

This section should explain the scientific motivation for the investigation, describe the approach that is being proposed, and relate the approach to the scientific objectives of the investigation. It should include sections which cover:

a. Objectives and Significant Aspects. This would include a brief definition of the objectives, their value, and their relationships to past, current, and future research. The history and basis for the proposal and a demonstration of the need for such an investigation should also be provided. There should be a statement of present state of knowledge and development in the discipline field and how the proposed research would increase our understanding of the selected problem.

b. Investigation Approach. The text should fully describe the concept of the investigation and detail the method and procedures for carrying out the investigation. The specifics of the approach should be related to the science objectives of the proposed investigation.

3. INSTRUMENTATION

This section should describe all information necessary to plan for experiment development, coordination, and implementation. This section must be complete in itself without need to request additional data. Failure to furnish complete data may preclude evaluation of the proposal. This section should cover the following:

a. Instrument Description. This section should fully describe the instrumentation and indicate any items which are proposed to be developed. Performance characteristics should be related to the experiment objectives as stated in the proposal.

b. Use of Facilities. This section should describe any general purpose observing or computing facilities which are required by the investigation. This includes facilities available through NASA programs other than this Announcement (such as sounding rockets) and through non-NASA organizations. The means by which the investigator has or will obtain commitment for use of these facilities should be explained.

c. Ground Operations. This section should identify the requirements for prelaunch or post-launch ground operations support.

B. DATA PLAN

This section should describe a plan designed to assure the full scientific exploitation of the acquired data base and to facilitate the use of the data by both the investigator group and scientists in general. This section should include a discussion of the data reduction and analysis plan including a schedule for the submission of reduced data to an appropriate data archive which will serve as the repository for such data.

Proposers are asked to identify what data could appropriately be incorporated into an on-line data base and what data would be useful for proposers to receive on an on-line data base for correlative or operational purposes. Questions of standardized data formats should also be addressed.

SECTION II
MANAGEMENT PLAN AND COST PLAN

A. MANAGEMENT PLAN

The management plan should summarize the management approach and the facilities and equipment required. Additional guidelines applicable to non-U.S. proposers are contained herein.

1. MANAGEMENT

a. The management plan sets forth the investigator's approach for managing the work, the recognition of essential management functions, and the overall integration of these functions.

b. The management plan gives insight into the organization proposed for the work, including the internal operations and lines of authority with delegations, together with internal interfaces and relationships with NASA, major subcontractors and associated investigators. Likewise, the management plan usually reflects various schedules necessary for the logical and timely pursuit of the work, accompanied by a description of the investigator's work plan and the responsibilities of the Co-Investigators.

c. If a new instrument is to be developed, the plan should describe the proposed method of instrument acquisition. Specifically, it should include the following, as applicable:

(1) Rationale for the investigator to obtain the instrument through or by the investigator's institution.

(2) Method and basis for the selection of the proposed instrument fabricator.

(3) Unique or proprietary capabilities of the instrument fabricator that are not available from any other source.

(4) Contributions or characteristics of the proposed fabricator's instrument that make it an inseparable part of the investigation.

(5) Availability of supporting personnel in the institution to successfully administer the instrument contract and technically monitor the fabrication.

(6) Status of development of the instrument. What additional development is needed. Areas that need further design or in which unknowns are present.

(7) Method by which the investigator proposes to:

(a) Prepare instrument specifications.
(b) Review development progress.
(c) Review design and fabrication changes
(d) Participate in testing program.
(e) Participate in final checkout and calibration.
(f) Support the flight operations.
(g) Coordinate with Co-Investigators and other investigations.
(h) Assure safety, reliability, and quality.

(8) Planned participation by small and/or minority business in any subcontracting for instrument fabrication or investigative support functions.

2. FACILITIES AND EQUIPMENT

All major facilities, laboratory equipment, and ground-support equipment (GSE) (including those of the investigator's proposed contractors and those of NASA and other U.S. government agencies) essential to the experiment in terms of its system and subsystems are to be indicated, distinguishing in so far as possible between those already in existence and any that will be developed in order to execute the investigation. The outline of facilities and equipment should also indicate the lead time involved and the planned schedule for construction, modification, and/or acquisition of the facilities.

3. ADDITIONAL GUIDELINES APPLICABLE TO NON-U.S. PROPOSERS ONLY

The following guidelines are established for foreign responses to NASA's Announcements of Opportunity. Unless otherwise indicated in a specific announcement, these guidelines indicate the appropriate measures to be taken by foreign proposers, prospective foreign sponsoring agencies, and NASA leading to the selection of a proposal and execution of appropriate arrangements. They include the following:

a. "Notice of Intent" to propose should be sent directly to the office designated herein with a copy sent to NASA's Office of International Affairs. All other correspondence (including proposals and endorsements) from foreign proposers and organizations should be sent to:

National Aeronautics and Space Administration
International Affairs Division
Code LID-18, AO No. OSSA-2-83
Washington, DC 20546
U.S.A

b. Unless otherwise indicated in the Announcement of Opportunity, proposals will be submitted in accordance with the NASA "Guidelines for Proposals Preparation." Proposals should be typewritten and in English.

c. Persons planning to submit a proposal should arrange with an appropriate foreign governmental agency for a review and endorsement of the proposed activity. Such endorsement by a foreign organization indicates:

(1) The proposal merits careful consideration by NASA.

(2) If the proposal is selected, sufficient funds will be available to undertake the activity envisioned.

d. Proposals (along with the requested number of copies) and letters of endorsement from the foreign governmental agency should be forwarded to NASA in time to arrive before the deadline established for each Announcement of Opportunity. These documents should be sent to:

National Aeronautics and Space Administration
International Affairs Division
LID-18, AO-OSSA-2-83
Washington, DC 20546
U.S.A.

e. All proposals should be received before the established closing date; those received after the closing date will be treated in accordance with NASA's provisions for late proposals. Sponsoring foreign governmental agencies, may, in exceptional situations, forward a proposal directly to the above address if review and endorsement is not possible before the announced closing date. In such cases, NASA should be advised when a decision on endorsement can be expected.

f. Shortly after the deadline for each Announcement of Opportunity, NASA's International Affairs Division will advise the appropriate sponsoring agency which proposals have been received and when the selection process should be completed. A copy of this acknowledgement will be provided to each proposer.

g. Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating the Announcement of Opportunity. Copies of these letters will be sent to the sponsoring governmental agency.

h. NASA's International Affairs Division will then begin making the necessary arrangements to provide for the selectee's participation in the appropriate NASA program. Depending on the nature and extent of the proposed cooperation, these arrangements may entail:

(1) A letter of notification by NASA.

(2) An exchange of letters between NASA and the sponsoring foreign governmental agency.

(3) An agreement or Memorandum of Understanding between NASA and the sponsoring foreign governmental agency.

B. COST PLAN (U.S. Investigations Only)

The cost plan should summarize the total investigation cost by major categories of cost as well as by function.

1. The categories of cost should include the following:

a. Direct Labor. List by labor category, with labor-hours and rates for each. Provide actual salaries of all personnel and the percentage of time each individual will devote to the effort.

b. Overhead. Include indirect costs which, because of their incurrence for common or joint objectives, are not readily subject to treatment as a direct cost. Usually this is in the form of a percentage of the direct labor cost.

c. Materials. This should give the total cost of the bill of materials including estimated cost of each major item. Include lead time of critical items.

d. Subcontracts. List those over $25,000 and specify the vendor and the basis for estimated costs. Include any baseline or supporting studies.

e. Special Equipment. Include a list of special equipment with lead and/or development time.

f. Travel. List estimated number of trips, destinations, duration, purpose, number of travelers, and anticipated dates.

g. Other Costs. Costs not covered elsewhere.

h. General and Administrative Expense. This includes the expenses of the institution's general and executive offices and other miscellaneous expenses related to the overall business.

i. Fee (if applicable).

2. Separate schedules, in the above format, should be attached to show total cost allocable to the following:

a. Principal Investigator and other investigator costs.

b. Instrument costs.

c. Observing costs.

d. Data reduction and analysis including the amount and cost of computer time.

3. The total cost of each of the four phases of the investigation as given in Section V D. should be identified.

4. If the effort is sufficiently known and defined, a funding obligation plan should provide the proposed funding requirements of the investigations by quarter and/or annum keyed to the work schedule.

* U.S. GOVERNMENT PRINTING OFFICE: 1983-381-566:NASA-117

END

10-14-83